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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,688	06/12/2001	Jae-Yoel Kim	678-693 (P9800)	4991

28249 7590 08/28/2006

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EXAMINER	
TORRES, JOSEPH D	

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/879,688	KIM ET AL.	
	Examiner	Art Unit	
	Joseph D. Torres	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8,9,19,20,25 and 29-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8,9,19,20,25,29-31,33,34,36 and 38-44* is/are rejected.

7)☒ Claim(s) *32,35 and 37* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *20060824* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

In response to this requirement, please agree or disagree to the stipulation of each of the following assertions of facts:

In a conversation with the Applicant's representative on 8/24/2006, the Applicant's representative cited to court cases In Re Jones (21 USPQ2d 1941) and In Re O'Farrell (7 USPQ2d 1673) stating that the puncturing patterns in claims 9, 20, 25, 29, 36 and 38 form a species under the genus of general puncturing patterns and that the genus cannot be used to disclose all species within the broad category of the genus.

Merriam-Webster's Collegiate Dictionary defines genus a class, kind or group marked by common characteristics and a species a class of individuals having common attributes and designated by a common name. In order for a class of individuals to qualify as a species, the class must be marked with common attributes and have a designated common name.

The Examiner asserts that the puncturing patterns in claims 9, 20, 25, 29, 36 and 38 are substantially uniform maximal minimum distance puncturing patterns.

The Examiner requests that the Applicant either affirm or disagree with the statement - the puncturing patterns in claims 9, 20, 25, 29, 36 and 38 are substantially uniform maximal minimum distance puncturing patterns.

In response to this requirement, please provide answers to each of the following interrogatories eliciting factual information:

If the Applicant disagrees with the statement - the puncturing patterns in claims 9, 20, 25, 29, 36 and 38 are substantially uniform maximal minimum distance puncturing patterns, the Examiner requests that the Applicant provide the designated common name for the puncturing patterns in claims 9, 20, 25, 29, 36 and 38 and that the Applicant provide the common attributes that make the puncturing patterns in claims 9, 20, 25, 29, 36 and 38 a species reciting support in the specification for such an allegation.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8, 9, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the sequence of 48 symbols" in line 14. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "the sequence of 48 symbols" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Response to Arguments

3. Applicant's arguments with respect to claims 8,9,19,20,25,29-31,33,34,36 and 38-44 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) in view of Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155).

35 U.S.C. 103(a) rejection of claims 8 and 19.

Citation #4 teaches an orthogonal sequence generator for creating a plurality of biorthogonal sequences having a length of at least 2^n, where n=5, and outputting a biorthogonal sequence selected from the biorthogonal sequences by first information bits of the TFCI (The Table on the second page of Citation #4 clearly suggests a means for generating the Orthogonal Variable Spreading Factor OVSF Code sequence $C_{32,1}$ to $C_{32,32}$); a mask sequence generator for creating a plurality of mask sequences, and outputting a mask sequence selected from the mask sequences by second information bits of the TFCI (Table 1 on the third page of Citation #4 clearly suggests a means for creating a plurality of mask sequences); an adder for adding a biorthogonal sequence from the orthogonal sequence generator and a mask sequence from the mask sequence generator (Figure 2 on the third page of Citation #4 teaches a adder $\sum$ for adding a biorthogonal sequence $C_{32,2}$, $C_{32,3}$, $C_{32,5}$, $C_{32,9}$ and $C_{32,17}$ from the orthogonal

sequence generator and a mask sequence, Mask 1-4, from the mask sequence generator); and a puncturer for performing puncturing on the sequence of 2^n symbols from the adder so as to output the sequence of m symbols (Figure 1 on the third page of Citation #4 teaches a puncturer for performing puncturing on the sequence of 32-bit symbols from the adder so as to output a sequence of 32-bit symbols).

However Citation #4 does not explicitly teach the specific use of a second order Reed-Muller code with $2^n > 48$.

Wicker, in an analogous art, teaches use of a second order Reed-Muller code with $2^n > 48$ (Table 7-1 on page 154 of Wicker).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Citation #4 with the teachings of Wicker by including use of a Reed-Muller code with $2^n > 48$. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a Reed-Muller code with $2^n > 48$ would have provided increased error protection.

5. Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) and Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155) in view of Tong; Wen et al. (US 6744744 B1, hereafter referred to as Tong).

35 U.S.C. 103(a) rejection of claims 9 and 20.

Citation #4 and Wicker substantially teaches the claimed invention described in claims 8 and 19 (as rejected above). Note: Figure 1 on the third page of Citation #4 teaches a puncturer for performing puncturing on the sequence of 32-bit symbols from the adder so as to rate match the output to a particular channel requirement by producing an output sequence form the puncturer of 30-bit symbols.

However Citation #4 and Wicker do not explicitly teach the specific use of uniform maximal minimum distance puncturing patterns as taught in claims 9 and 20.

Tong, in an analogous art, teaches use of uniform maximal minimum distance puncturing patterns (Col. 1, lines 36-40 and col. 9, lines 24-26 in Tong teaches that increasing or maximizing the minimum puncturing distance so as to come as close as possible to uniformly puncturing bits is not only desirable but near optimal; Note: maximizing minimum puncturing distance leads to substantially uniform puncturing).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Citation #4 and Wicker with the teachings of Tong by including use of uniform maximal minimum distance puncturing patterns. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of uniform maximal minimum distance

puncturing patterns would have provided near optimal puncturing patterns (Col. 1, lines 36-40 and col. 9, lines 24-26 in Tong).

6. Claims 25, 29, 36 and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999) and Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155) in view of Tong; Wen et al. (US 6744744 B1, hereafter referred to as Tong) in further view of Citation #7 ("Harmonization impact on TFCI and New Optimal Coding for extended TFCI with Almost no Complexity increase", TSGR#6(99)970, July 13-16, 1999).

35 U.S.C. 103(a) rejection of claims 25, 29, 36 and 38.
Citation #4 teaches an orthogonal sequence generator for creating a plurality of biorthogonal sequences having a length of at least 2^n, where n=5, and outputting a biorthogonal sequence selected from the biorthogonal sequences by first information bits of the TFCI (The Table on the second page of Citation #4 clearly suggests a means for generating the Orthogonal Variable Spreading Factor OVSF Code sequence $C_{32,1}$ to $C_{32,32}$); a mask sequence generator for creating a plurality of mask sequences, and outputting a mask sequence selected from the mask sequences by second information bits of the TFCI (Table 1 on the third page of Citation #4 clearly suggests a means for creating a plurality of mask sequences); an adder for adding a biorthogonal sequence from the orthogonal

sequence generator and a mask sequence from the mask sequence generator (Figure 2 on the third page of Citation #4 teaches a adder $\sum$ for adding a biorthogonal sequence $C_{32,2}$, $C_{32,3}$, $C_{32,5}$, $C_{32,9}$ and $C_{32,17}$ from the orthogonal sequence generator and a mask sequence, Mask 1-4, from the mask sequence generator); and a puncturer for performing puncturing on the sequence of 2^n symbols from the adder so as to output the sequence of m symbols (Figure 1 on the third page of Citation #4 teaches a puncturer for performing puncturing on the sequence of 32-bit symbols from the adder so as to output a sequence of 32-bit symbols).

However Citation #4 does not explicitly teach the specific use of a second order Reed-Muller code with $2^n > 48$.

Wicker, in an analogous art, teaches use of a second order Reed-Muller code with $2^n > 48$ (Table 7-1 on page 154 of Wicker).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Citation #4 with the teachings of Wicker by including use of a Reed-Muller code with $2^n > 48$. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a Reed-Muller code with $2^n > 48$ would have provided increased error protection.

However Citation #4 and Wicker do not explicitly teach the specific use of uniform maximal minimum distance puncturing patterns as taught in claims 9 and 20.

Tong, in an analogous art, teaches use of uniform maximal minimum distance puncturing patterns (Col. 1, lines 36-40 and col. 9, lines 24-26 in Tong teaches that increasing or maximizing the minimum puncturing distance so as to come as close as possible to uniformly puncturing bits is not only desirable but near optimal; Note: maximizing minimum puncturing distance leads to substantially uniform puncturing).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Citation #4 and Wicker with the teachings of Tong by including use of uniform maximal minimum distance puncturing patterns. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of uniform maximal minimum distance puncturing patterns would have provided near optimal puncturing patterns (Col. 1, lines 36-40 and col. 9, lines 24-26 in Tong).

However Citation #4, Wicker and Tong do not explicitly teach the specific use of a Walsh Code.

Citation #7, in an analogous art, teaches use of a Walsh Code (Figure 5 on page 5 of Citation #7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Citation #4, Wicker and Tong with the teachings of Citation #7 by including use of a Walsh Code. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have

recognized that use of a Walsh Code would have provided a simple decoding procedure because of the natural extension (page 5 of Citation #7).

35 U.S.C. 103(a) rejection of claims 39 and 40.

Figure 2 in Citation #4 teaches an all 1's generator.

7. Claims 30, 31, 33, 34 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citation #4 ("Text proposal regarding TFCI coding for FDD", TSGR1#7(99)D69, August 30-September 3, 1999), Wicker (Stephen B. Wicker, Error Control Systems for Digital Communication and Storage, Prentice-Hall, 1996, pages 149-155) and Tong; Wen et al. (US 6744744 B1, hereafter referred to as Tong) in view of Citation #7 ("Harmonization impact on TFCI and New Optimal Coding for extended TFCI with Almost no Complexity increase", TSGR#6(99)970, July 13-16, 1999).

35 U.S.C. 103(a) rejection of claims 30 and 33.

Citation #4, Wicker, Tong and Citation #7 substantially teaches the claimed invention described in claims 25 and 29 (as rejected above). In addition, Figure 5 in Citation #7 teaches selection of specific Walsh codes.

However Citation #4, Wicker, Tong and Citation #7 do not explicitly teach the specific use of the specific Walsh Codes in claim 30.

The Examiner asserts that one of ordinary skill in the art at the time the invention was made would know that there are only a finite number of 64-bit Walsh codes

to select from and hence selection of another finite number of Walsh code is an obvious variation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Citation #4, Wicker, Tong and Citation #7 by including use of the specific Walsh Codes in claim 30. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the specific Walsh Codes in claim 30 would have provided a simple decoding procedure because of the natural extension (page 5 of Citation #7).

35 U.S.C. 103(a) rejection of claim 31 and 34.

Citation #4, Wicker, Tong and Citation #7 substantially teaches the claimed invention described in claims 25 and 29 (as rejected above).

However Citation #4, Wicker, Tong and Citation #7 do not explicitly teach the specific use of the specific masking sequence in claim 31.

The Examiner asserts that one of ordinary skill in the art at the time the invention was made would know that there are only a finite number of 64-bit masking sequences to select from and hence selection of another finite number of masking sequences is an obvious variation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Citation #4, Wicker, Tong and Citation #7 by including use of the specific masking sequence in claim 31.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the specific masking sequence in claim 31 would have provided a simple decoding procedure because of the natural extension (page 5 of Citation #7).

35 U.S.C. 103(a) rejection of claims 41 and 43.

Citation #4, Wicker and Citation #7 substantially teaches the claimed invention described in claims 25 and 29 (as rejected above). In addition, Figure 5 in Citation #7 teaches selection of specific Walsh codes and Figure 2 in Citation #4 teaches an all 1's generator.

However Citation #4, Wicker and Citation #7 do not explicitly teach the specific use of the specific Walsh Codes in claims 41 and 43.

The Examiner asserts that one of ordinary skill in the art at the time the invention was made would know that there are only a finite number of 64-bit Walsh codes to select from and hence selection of another finite number of Walsh code is an obvious variation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Citation #4, Wicker and Citation #7 by including use of the specific Walsh Codes in claims 41 and 43.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the specific Walsh Codes in claims 41 and 43 would

have provided a simple decoding procedure because of the natural extension (page 5 of Citation #7).

35 U.S.C. 103(a) rejection of claims 42 and 44.

Since claim 42 substantially recites the same language as in claim 31 the Examiner refer the Applicant to the Non-Final Action filed 01/19/2006 for the rejection of claim 31.

Allowable Subject Matter

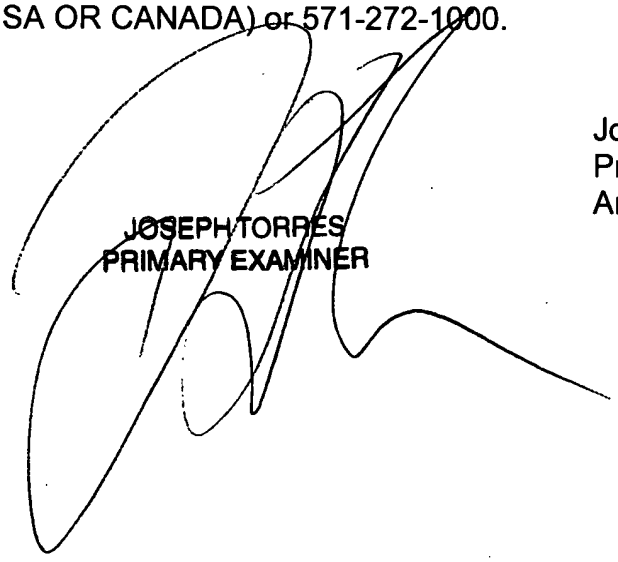
8. Claims 32, 35 and 37 objected to as being dependent upon respective rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the respective base claims and any intervening claims.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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